California ISO

## Stakeholder Comments Template

## Energy Storage and Distributed Energy Resources (ESDER) Phase 4

This template has been created for submission of stakeholder comments on the Revised Straw Proposal for ESDER Phase 4. The paper, stakeholder meeting presentation, and all information related to this initiative is located on the initiative webpage.

Upon completion of this template, please submit it to initiativecomments@caiso.com. Submissions are requested by close of business **November 12, 2019.**

| Submitted by | Organization | Date Submitted |
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**Please provide your organization's general comments on the following issues and answers to specific requests.**

1. **End-of hour state-of-charge proposal**

As stated in CPUC staff comments on the ESDER Phase 4 proposal submitted on May 17, 2019 and July 11, 2019, CPUC staff supports the State-of-Charge (SOC) proposal because it…

> allows scheduling coordinators to achieve the optimal use of an energy storage resource throughout the day through desired end-of-hour SOC parameters. The SOC parameter proposal is thus useful overall to achieving the Multiple Use-case Application (MUA) framework[1] developed jointly by CAISO and CPUC.[2]

CPUC staff also supports this proposal because it does not require scheduling coordinators to use SOC parameters but provides the option to use them. The proposal

[1] *Decision 18-01-003, Decision on Multiple-Use Application Issues, issued January 17, 2018 in R.15-03-011, Order Instituting Rulemaking to consider policy and implementation refinements to the Energy Storage Procurement Framework and Design Program (D.13.-10-040, D.14-10-045) and related Action Plan of the California Energy Storage Roadmap.*

[2] *CPUC stakeholder comments on the Energy Storage and Distributed Energy Resources Phase 4 Straw Proposal*, May 17, 2019, p. 1.

also allows scheduling coordinators to submit a range for their end-of hour SOC parameter.[3]

For the end-of hour SOC bidding, CPUC staff requests clarifications on the CAISO's proposed Bid Cost Recovery (BCR) rules. CPUC staff requests that the CAISO explain how a resource will be ineligible for BCR during an hour or an interval, when BCR is currently calculated for the entire day. Does the CAISO mean that the bid costs for those intervals or hours will not be counted? Does the CAISO also intend that the revenue in those intervals will not be counted in the BCR calculations for the day? CPUC staff would like to see more detail, along with formulas and examples, to evaluate the CAISO's proposal for BCR rules for end-of hour SOC in its entirety.

CPUC staff would also like to understand how the CAISO will define uneconomic dispatches for energy storage resources. In particular, dispatches that may seem uneconomic but are required to comply with the stated SOC or may seem uneconomic because the system wants to position a resource to charge or discharge in the future when prices are expected to justify the charging or discharging. How will the CAISO determine if a dispatch is made for stated SOC values versus high or low prices in the advisory intervals?

2. **Discussion of end-of-day state-of-charge**

CPUC staff requests CAISO give further consideration to the spread bidding proposal as described in the CPUC's ESDER Phase 4 comments submitted on July 11, 2019.[4] To this end, CPUC staff suggests that the CAISO also consider the possible price spreads to move less than four hours of energy in a given day in their evaluation. CPUC staff makes this request because the CAISO states in the ESDER Phase 4 Revised Straw Proposal that…

> it is unclear if actual price spreads in the electricity market are sufficient to clear any hurdle that would make it economic for these resources to shift large quantities of energy. This is in part due to data showing that the highest possible spreads to move 4 hours of energy during the day are just over $40/MWh, and the spreads in the morning hours – when they are present – are less than $20/MWh on average.[5]

Assuming that on average the highest energy prices are between the peak evening demand hours, which are between 7 pm to 9 pm, there are likely opportunities for lithium-ion energy storage operators to cover their costs by providing energy for these peak hours, which cover a two hour block of time versus a four hour block of time. The actual price spreads may also vary based on the season and on event days.

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[3] *CAISO Energy Storage and Distribution Energy Resources Phase 4 Revised Straw Proposal*, October 21, 2019, p. 4.
[4] *CPUC stakeholder comments on the Energy Storage and Distributed Energy Resources Phase 4 Straw Proposal*, July 11, 2019, pp 2-3.
[5] *CAISO Energy Storage and Distribution Energy Resources Phase 4 Revised Straw Proposal*, October 21, 2019, p. 11.

3. **Market power mitigation for storage resources**

CPUC staff supports the stakeholder process for the ESDER Phase 4 proposals and recommends additional in person meetings to develop the proposed Default Energy Bid (DEB) proposal. In person meetings would allow sufficient opportunities for stakeholders to present their considerations and feedback on the DEB proposal.

CPUC staff has two concerns on the proposal. The first concern is regarding the proposed DEB cost categories and the second concern is regarding the proposed DEB formula.

The current cost categories for the DEB proposal include: (1) Energy Costs; (2) Energy Losses (parasitic losses and round-trip efficiency losses); (3) Cycling Costs and (4) Opportunity Costs.[6] CPUC staff continues to support consideration of a variable operating and maintenance (VOM) as a fifth cost category for the DEB proposal. As stated in ESDER Phase 4 comments submitted on July 11, 2019, "CPUC staff supports the use of … VOM costs in any DEB calculation that the CAISO proposes."[7]

To further inform the costs to include in VOM cost category for the DEB proposal, CPUC staff suggests that the CAISO engage storage developers and operators directly in this ESDER stakeholder process through invitations to provide presentations and/or in person workshops to allow discussion on the VOM for energy storage and the proposed DEB cost models.

For example, in a separate CAISO stakeholder initiative discussion on VOM cost review for storage resources, Southern California Edison has requested that ventilation costs be considered as part of the VOM for energy storage resources.[8] To further develop the DEB proposal, it would be beneficial to hear more from SCE and other energy storage operators on their fixed and variable energy storage costs.

CPUC staff also requests further explanation on the inputs and assumptions for the energy and opportunity cost categories. Thus far, the CAISO has focused on determining the cycling and operating costs for lithium-ion energy storage resources. The energy and opportunity cost categories often represent the largest cost components of an energy storage bid. In the CAISO's DEB formula proposal, these costs are based on prices from nearby trading hubs. This proposal does not allow an energy storage resource to reflect

[6] *CAISO Energy Storage and Distribution Energy Resources Phase 4 Revised Straw Proposal*, October 21, 2019, p. 13.
[7] *CPUC stakeholder comments on the Energy Storage and Distributed Energy Resources Phase 4 Straw Proposal*, July 11, 2019, p. 3.
[8] *Southern California Edition, Variable Operations and Maintenance Costs Review Working Groups – Stakeholder Comments*, July 26, 2019, p. 2.

their energy costs and opportunity costs accurately because energy storage resources do not use nodal prices specific to the resource's location.[9]

Additionally, CPUC staff is concerned that the DEB formula methods proposed will not be useful for real time market bid activity. Currently, energy storage resources are picked up for frequency regulation in the integrated forward market (IFM) and these resources are then not available for other kinds of dispatch in the real time market. With the anticipated expansion of the energy storage fleet, it is reasonable to expect that the regulation market will be satisfied with just a finite portion of the energy storage fleet. Once this happens, having policies in place that allow for energy storage resources to bid and be dispatched in the real time market will be essential to meeting state goals and achieving market efficiency.

Related, there may also be limitations in the forward outlook of the CAISO market software to allow energy storage to participate in the real time market. These issues need to be further explored and addressed.

4. **Variable output demand response**

The CAISO believes variable-output and availability-limited demand response (DR) resources should be considered under an Effective Load Carrying Capability (ELCC) methodology to determine their qualifying capacity values.[10] To do this the CAISO has contracted with Energy and Environmental Economics, Inc. (E3) to develop an analytical framework to evaluate the resource adequacy value of demand response using an ELCC methodology. The CAISO then intends to use the outcome of this initiative to inform the CPUC and other Local Regulatory Authorities (LRAs) on how demand response could be valued considering its variable and availability-limited nature.

As rightfully stated by the CAISO, the local regulatory authorities, such as CPUC, are responsible for determining the qualifying capacity values for resource adequacy resources.

As this modeling effort is being carried out CPUC Staff would like to be informed about the assumption and specific parameters of DR resources that are an input to the model for the purposes of this study.

CPUC Staff also note that the Commission has adopted load impact protocols as the methodology for determining qualifying capacity of demand response. Any potential changes to the qualifying capacity methodology must be considered in the Commission's Resource Adequacy proceeding. If and when the CAISO brings the results of the study to the CPUC for consideration, Staff request that the underlying assumptions, raw data and methodology be made available.

The revised Straw Proposal states that "For demand response auction mechanism (DRAM) resources, the qualifying capacity is set to the MW amount contracted as

[9] *CAISO Energy Storage and Distribution Energy Resources Phase 4 Revised Straw Proposal*, October 21, 2019, p. 14.
[10] *CAISO Energy Storage and Distributed Energy Resources Phase 4 Revised Straw Proposal, October 21, 2019*, p.33

resource adequacy."[11] While that statement holds true for the early pilot years of DRAM, we would like to clarify that Decision 19-07-009 approved at the CPUC on July 11, 2019 established Qualifying Capacity (QC) guidelines for the Demand Response Auction Mechanism resources procured after July 2019, which require that QC values be based on historical test or market dispatch performance data.

5. **Parameters to reflect demand response operational characteristics**

CPUC staff may comment on this issue in a later comment period.

6. **Removing consideration of non-24x7 settlement of behind the meter resources under DER aggregation model**

CPUC and CAISO staff are meeting this month on this ESDER proposal issue to develop a response and determine next steps.

7. **Additional comments**

Please offer any other feedback your organization would like to provide from the topics discussed during the working group meeting.

[11] *Id* at 33